

CLAIM(S)

1. Method for producing a cyanide-free solution of a gold compound that is suitable for gold electrodeposition baths, by:

(a) reaction of a cysteine and/or cysteinate with tetrachloroauric acid and/or a tetrachloroaurate in a first aqueous medium,

(b) separation of the resulting precipitate from the first aqueous medium, and

(c) dissolving of the precipitate in a second aqueous medium with elevation of the pH to 12.0-14.0.

2. Method in accordance with Claim 1, characterized by the fact that the separated precipitate is washed until it is free of chloride.

3. Method in accordance with Claim 1 or Claim 2, characterized by the fact that the molar ratio of cysteine/cysteinate to the tetrachlorogold compound is 3:1 to 10:1.

4. Method in accordance with any of Claims 1-3, characterized by the fact that the reaction is carried out at a temperature of $T < +30^{\circ}\text{C}$.

5. Method in accordance with any of Claims 1-4, characterized by the fact that the pH is raised to 13.5 during the dissolving of the precipitate.

6. Method in accordance with any of Claims 1-5, characterized by the fact that potassium L-cysteinate is used as the cysteinate.

7. Solution of a gold compound produced by a method in accordance with any of Claims 1-6.

8. Use of a solution of a gold compound in accordance with Claim 7 as a precursor for the production of gold-containing heterogeneous catalysts.

9. Use of a solution of a gold compound in accordance with Claim 7 as a gold electrodeposition bath.

10. Use of a method in accordance with any of Claims 1-6 for producing

a solution of a gold compound that is suitable for gold electrodeposition gold baths as a precursor for the production of gold-containing heterogeneous catalysts.

11. Use of a method in accordance with any of Claims 1-6 for producing a solution of a gold compound that is suitable for gold electrodeposition gold baths as a gold electrodeposition bath.

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